UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,703	04/30/2001	Kenro Hama	018775-826	9401

7590 07/17/2008

Platon N. Mandros
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER	
MENBERU, BENIYAM	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
07/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/843,703	HAMA ET AL.	
	Examiner	Art Unit	
	BENIYAM MENBERU	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/8/5008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6,8,9,11,12,14,15,17,18 and 20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,8,9,11,12,14,15,17,18 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 8, 2008 has been entered.

Response to Arguments

2. Applicant's arguments filed April 8, 2008 have been fully considered but they are not persuasive.

Applicant stated in the Remarks (April 8, 2008), that U.S. Patent No. 5689590 to Shirasawa et al does not disclose the second decision controller which determines whether linear calculation between color components of the target pixel exist in a second range different from the first range with respect to claim 11 and that there is no teaching of a respective second range in Shirasawa et al '590. However Examiner disagrees because the teachings Shirasawa et al '590 does disclose of second decision controller which determines whether linear calculation between color components of the target pixel exist in a second range different from the first range. Shirasawa et al '590 discloses in column 15, lines 41-55 (see also Figure 14), respective first ranges corresponding to the value max which is MAX(r, g, b). These ranges are:

1) max<Th1, for zone Z0,

2) Th1≤max<Th1+Thd for zone Z1

3) max<Th1, for zone Z2

4) Th1≤max<Th1+Thd for zone Z3

If the max (r, g, b) value is less than Th1, then it is equivalent to all components being less than Th1, therefore

5) r < Th1, g < Th1, b < Th1 or

Thus equation 5 defines the first range for all the color components. The range is defined by color component values less than Th1.

With respect to the second ranges, the value D=δ(r, g, b) which is max (|r-g|, |g-b|, |r-b|) is compared against second ranges as follows. To find the maximum, separate linear calculation of the r-g, g-b, and r-b has to be determined and then the maximum value of the difference can be found. Further Shirasawa et al '590 compares the value D which is max (|r-g|, |g-b|, |r-b|) with respective second ranges:

1') D<Th2 for zone Z0,

2') D<Th2 for zone Z1

3') D<Th2+Thd for zone Z2

4') D<Th2+Thd for zone Z3

If the D=max (|r-g|, |g-b|, |r-b|) is less than Th2, then it is equivalent to all difference values |r-g|, |g-b|, |r-b| being less than Th2, therefore:

5') |r-g| < Th2, |g-b| < Th2, |r-b| < Th2

Thus each linear calculation |r-g|, |g-b|, |r-b| satisfy a second range wherein the second range is color difference value less than Th2 for all color difference value.

Thus Shirasawa et al '590 does disclose second decision controller which determines whether linear calculation (linear calculation of |r-g|, |g-b|, |r-b|) between each color components of the target pixel exist in a second range different (the second range is with respect to values Th2 as shown in equation 5') from the first range (the first ranges is with respect to Th1 as shown in equation 5).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 12, 14, 15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5689590 to Shirasawa et al.

Regarding claim 11, Shirasawa et al '590 discloses an image processor comprising:

a first decision controller which decides whether each input color component gradation value of a target pixel exists in first ranges (column 16, lines 33-46; column 17, lines 27-30; The first ranges is defined by pixel components (r, g, b) having density levels (gradation) less than th1.; The object pixel is target pixel.);

a second decision controller which performs a linear calculation between each color component gradation value of the target pixel and decides whether results of the calculation exist in second ranges different from the first ranges (column 17, lines 56-67; column 18, lines 28-36; The difference (linear operation) density level (gradation) between the maximum (r, g, b) and minimum (r, g, b) components is compared to different threshold th2 (second ranges). When the maximum difference value is less than th2 (second ranges) then all the other possible difference value between other components will also be less than threshold th2. So when the maximum minus the minimum component is less than th2 than all the other difference values of the other components will also be less than th2.); and

a color decision controller which decides that the target pixel has a specified color when the first decision controller decides that each color component gradation value of the target pixel exists in the first ranges and the second decision controller decides that the results exist in the second ranges (column 17, lines 63-67; column 18, lines 1-14; When both thresholds th1, th2 are satisfied for the color components the output color value rp, gp, bp are set to 0's (column 9, lines 54-57)).

Regarding claim 12, Shirasawa et al '590 teaches all the limitations of claim 11, Further Shirasawa et al '590 discloses the image processor according to claim 11, wherein said second decision controller calculates differences between the color component gradation value of the target pixel and decides whether the differences exist in the second ranges (column 17, lines 56-67; column 18, lines 28-36; The difference (linear operation) density level (gradation) between the maximum (r, g, b) and minimum

(r, g, b) components is compared to different threshold th2 (second ranges). When the maximum difference value is less than th2 (second ranges) then all the other possible difference value between other components will also be less than threshold th2. So when the maximum minus the minimum component is less than th2 than all the other difference values of the other components will also be less than th2.).

Regarding claim 14, see Rejection of claim 11 as shown above. The apparatus of Shirasawa et al '590 renders obvious the method steps disclosed in claim 14.

Regarding claim 15, see Rejection of claim 12 as shown above. The apparatus of Shirasawa et al '590 renders obvious the method steps disclosed in claim 15.

Regarding claim 17, see Rejection of claim 11 as shown above. The apparatus of Shirasawa et al '590 renders obvious the programming steps disclosed in claim 17 since Shirasawa et al '590 discloses software for the processing (column 12, lines 66-67).

Regarding claim 18, see Rejection of claim 12 as shown above. The apparatus of Shirasawa et al '590 renders obvious the programming steps disclosed in claim 18 since Shirasawa et al '590 discloses software for the processing (column 12, lines 66-67).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al.

Regarding claim 1, Shirasawa et al '590 discloses an image processor comprising:

a first decision controller which decides whether each input color component gradation value of a target pixel exists in first ranges (column 16, lines 33-46; column 17, lines 27-30; The first ranges is defined by pixel components (r, g, b) having density levels (gradation) less than th1.;);

a second decision controller which decides whether differences between each color component gradation value of the target pixel exist in second ranges different from the first ranges (column 17, lines 56-67; column 18, lines 28-36; The difference density level (gradation) between the maximum (r, g, b) and minimum (r, g, b) components is compared to different threshold th2 (second ranges). When the maximum difference value is less than th2 (second ranges) then all the other possible difference value between other components will also be less than threshold th2. So when the maximum

minus the minimum component is less than th2 than all the other difference values of the other components will also be less than th2.); and

a color decision controller which decides that the target pixel has a specified color when the first decision controller decides that each color component gradation value of the target pixel exist exists in the first ranges and the second decision controller decides that the differences exist in the second ranges (column 17, lines 63-67; column 18, lines 1-14; When both thresholds th1, th2 are satisfied for the color components the output color value rp, gp, bp are set to 0's (column 9, lines 54-57)). However Shirasawa et al '590 does not disclose wherein the second decision controller determines differences between each color component gradation value of the target pixel and those of pixels adjacent thereto.

Matsugu et al '167 discloses wherein the second decision controller determines differences between each color component gradation value of the target pixel and those of pixels adjacent thereto (column 14, lines 29-67).

Having the system of Shirasawa et al '590 and then given the well-established teaching of Matsugu et al '167, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 as taught by Matsugu et al '167, since Matsugu et al '167 stated in col. 2, Lines 37-49, such a modification would provide a reliable method for extracting image data.

Regarding claim 3, Shirasawa et al '590 in view of Matsugu et al '167 teach all the limitations of claim 1. Further Matsugu et al '167 discloses the image processor according to claim 1, further comprising an edge detector which calculates differences in the color gradation value between the target pixel and a plurality of adjacent pixels thereof in a direction and decides a position of an edge based on the differences (column 11, lines 41-59; column 12, lines 26-50; The target is defined by the subject image pixel and the background pixel represent the adjacent pixels.).

Regarding claim 5, see Rejection of claim 1 as shown above. The apparatus of Shirasawa et al '590 in view of Matsugu et al '167 renders obvious the method steps disclosed in claim 5.

Regarding claim 8, see Rejection of claim 1 as shown above. The apparatus of Shirasawa et al '590 in view of Matsugu et al '167 renders obvious the programming steps disclosed in claim 8 since Shirasawa et al '590 discloses software for the processing (column 12, lines 66-67).

5. Claims 2, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al further in view of U.S. Patent No. 6631210 to Mutoh et al.

Regarding claim 2, Shirasawa et al '590 in view of Matsugu et al '167 teaches all the limitations of claim 1. However Shirasawa et al '590 in view of Matsugu et al '167 does not disclose an image processor, method, and program according to claim 1, wherein said second decision controller determines a maximum value among

differences of color gradation value between the target pixel and the adjacent pixels thereof and decides whether the maximum value exists in the second ranges.

Mutoh et al disclose an image processor, method, and program, wherein said second decision controller determines a maximum value among differences of color gradation value between the target pixel and the adjacent pixels thereof and decides whether the maximum value exists in the second ranges (column 26, lines 29-42; column 32, lines 24-32).

Having the system of Shirasawa et al '590 in view of Matsugu et al '167 and then given the well-established teaching of Mutoh et al '210, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 in view of Matsugu et al '167 as taught by Mutoh et al '210 since Mutoh et al '210 stated in col. 32, Lines 38-46, such a modification would provide detection of deep color area using the maximum value.

Regarding claim 6, see Rejection of claim 2 as shown above. The apparatus of Shirasawa et al ‘590 in view of Matsugu et al '167 further in view of Mutoh et al ‘210 renders obvious the method steps disclosed in claim 6.

Regarding claim 9, see Rejection of claim 2 as shown above. The apparatus of Shirasawa et al ‘590 in view of Matsugu et al '167 further in view of Mutoh et al ‘210 renders obvious the programming steps disclosed in claim 9 since Shirasawa et al ‘590 discloses software for the processing (column 12, lines 66-67).

6. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al further in view of U.S. Patent No. 6115494 to Sonoda et al.

Regarding claim 20, Shirasawa et al '590 in view of Matsugu et al '167 teaches all the limitations of claim 1. However Shirasawa et al '590 in view of Matsugu et al '167 does not disclose the image processor according to claim 1, further comprising:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller; and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them.

Sonoda et al '494 discloses:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller (column 7, lines 59-67; column 8, lines 37-65; column 11, lines 10-24; The element reads on “marks 2” shown in Figure 1. The marks 2 have triangular shape.); and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them (Figure 5 shows the device wherein the pattern detector 17 detects pattern (column 14, lines 30-34) based on the extracted pixels from output 13c (column 10, lines 43-67; column 11, lines 1-9). The extracted pixels from output 13c are based on the detection of the colors of marks by reference

13a and 13b which make up the pattern of Figure 1. Thus the pattern is detected based on the extracted pixels from the binary processing unit 13 shown in Figure 5(column 13, lines 1-11, lines 23-30; column 14, lines 20-43). In column 11, lines 30-34, the pattern recognition is related to recognizing the marks using mark shape extraction unit 13a since the marks form the pattern (column 8, lines 36-40) that is to be detected. 13a is used for accuracy purpose in conjunction with 13b which detects the color of marks).

Having the system of Shirasawa et al '590 in view of Matsugu et al '167 and then given the well-established teaching of Sonoda et al '494, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 in view of Matsugu et al '167 as taught by Sonoda et al '494, since Sonoda et al '494 stated in col. 8, Lines 45-47, 60-62, such a modification would provide an accurate pattern detection system.

Regarding claim 21, see Rejection of claim 20 as shown above. The apparatus of Shirasawa et al '590 in view of Matsugu et al '167 further in view of Sonoda et al '494 renders obvious the method steps disclosed in claim 21.

Regarding claim 22, see Rejection of claim 20 as shown above. The apparatus of Shirasawa et al '590 in view of Matsugu et al '167 further in view of Sonoda et al '494 renders obvious the programming steps disclosed in claim 22 since Shirasawa et al '590 discloses software for the processing (column 12, lines 66-67).

7. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6115494 to Sonoda et al.

Regarding claim 23, Shirasawa et al '590 teaches all the limitations of claim 11. However Shirasawa et al '590 does not disclose the image processor according to claim 11, further comprising:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller; and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them.

Sonoda et al discloses:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller (column 7, lines 59-67; column 8, lines 37-65; column 11, lines 10-24; The element reads on “marks 2” shown in Figure 1. The marks 2 have triangular shape.); and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them (Figure 5 shows the device wherein the pattern detector 17 detects pattern (column 14, lines 30-34) based on the extracted pixels from output 13c (column 10, lines 43-67; column 11, lines 1-9). The extracted pixels from output 13c are based on the detection of the colors of marks by reference

13a and 13b which make up the pattern of Figure 1. Thus the pattern is detected based on the extracted pixels from the binary processing unit 13 shown in Figure 5(column 13, lines 1-11, lines 23-30; column 14, lines 20-43). In column 11, lines 30-34, the pattern recognition is related to recognizing the marks using mark shape extraction unit 13a since the marks form the pattern (column 8, lines 36-40) that is to be detected. 13a is used for accuracy purpose in conjunction with 13b which detects the color of marks).

Having the system of Shirasawa et al '590 and then given the well-established teaching of Sonoda et al '494, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 as taught by Sonoda et al '494, since Sonoda et al '494 stated in col. 8, Lines 45-47, 60-62, such a modification would provide an accurate pattern detection system.

Regarding claim 24, see Rejection of claim 23 as shown above. The apparatus of Shirasawa et al ‘590 in view of Sonoda et al ‘494 renders obvious the method steps disclosed in claim 24.

Regarding claim 25, see Rejection of claim 23 as shown above. The apparatus of Shirasawa et al ‘590 in view of Sonoda et al ‘494 renders obvious the programming steps disclosed in claim 25 since Shirasawa et al ‘590 discloses software for the processing (column 12, lines 66-67).

Other Prior Art Cited

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5630036 to Sonohara et al discloses image compression.

U.S. Patent No. 6958772 to Sugimori discloses image processor.

U.S. Patent No. 5596655 to Lopez discloses image processing of scanned data.

U.S. Patent No. 6771813 to Katsuyama discloses pattern processing.

U.S. Patent No. 6396505 to Lui et al discloses pixel processing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENIYAM MENBERU whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov/>.

Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
Beniyam Menberu

/Beniyam Menberu/
Examiner, Art Unit 2625

07/14/2008

/David K Moore/

Supervisory Patent Examiner, Art Unit 2625